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(56) Documents cited
GB 1550960 A EP 0089110 A2

(58) Field of search
UK CL (Edition J) A5R RCE, B1L LAA LDB, B5N
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(54) Ostomy bag including a filter

(57) A filter for a ostomy bag includes the following components laminated together in the following order
(a) a layer of hot-melt adhesive whereby the filter may be affixed to a wall of the bag;
(b) a layer of microfine non-woven material;
(c) a matrix layer of hot melt adhesive;
(d) a filter member of carbon-impregnated polyurethane open cell foam;
(e) a matrix layer of hot melt adhesive; and
(f) a layer of non-woven fabric.

The filter may be disposed in a space defined between the bag wall and a partition wall made of a welded synthetic plastics film, and the bag wall may have an S-shaped cut therein to allow exit of flatus gases, located substantially at a central region of the filter. The partition wall in use serves to permit the passage of flatus gases from bag interior to filter but substantially prevent passage of liquids or solids.

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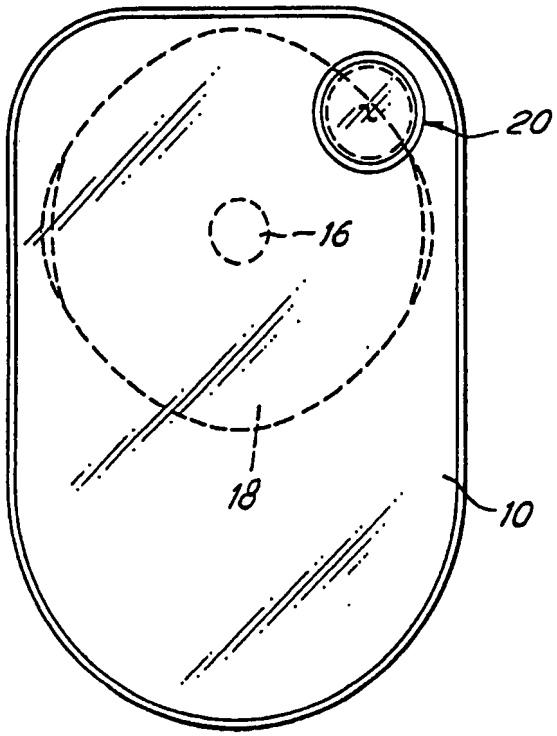

FIG. 1

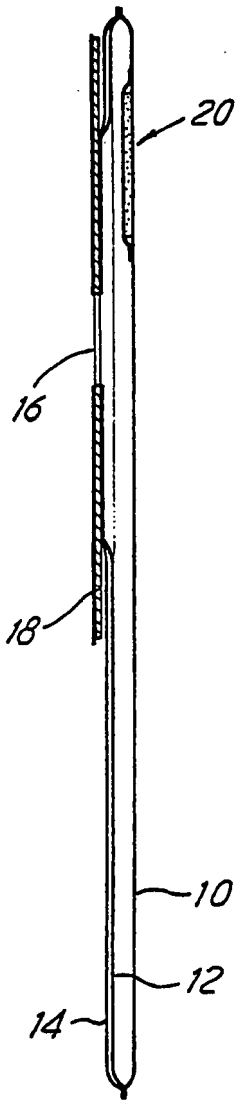

FIG. 3

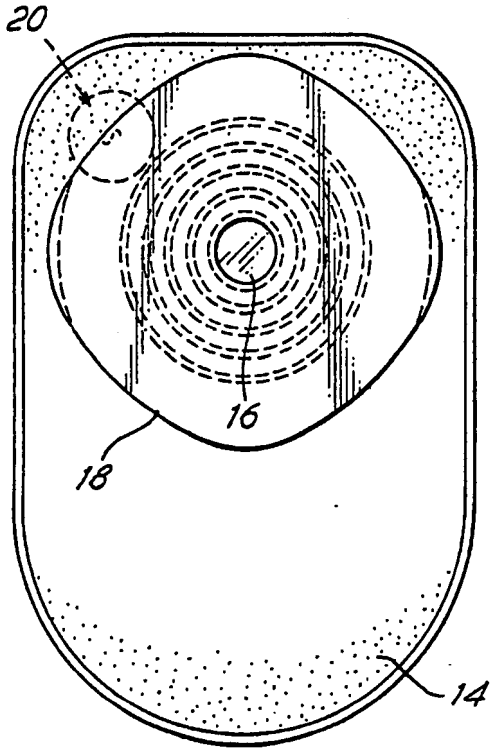

FIG. 2

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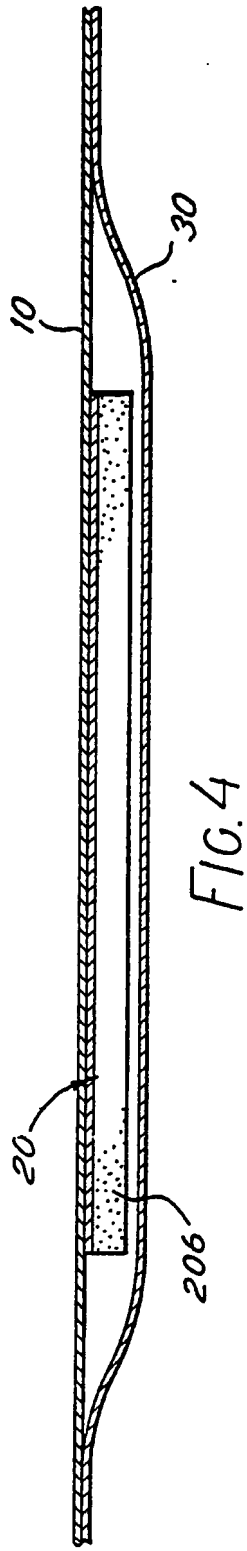

FIG. 4

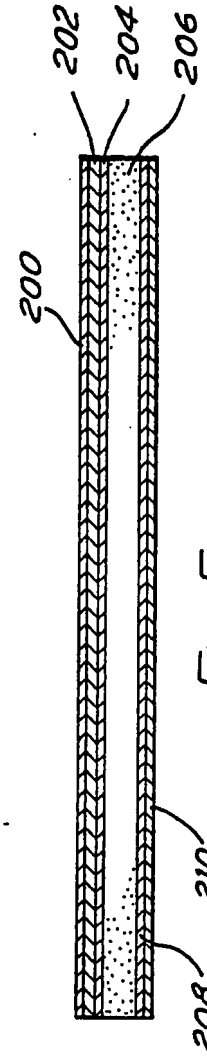

FIG. 5

OSTOMY BAG INCLUDING A FILTER

This invention relates to an ostomy bag including a filter.

The prior art is replete with designs of filter and with proposals for their inclusion in an ostomy bag, all directed at the problem of allowing escape of flatus gases from the bag while removing noxious-smelling components from such gases. Examples of proposals can be seen in U.K. Patents Nos. 1 117 204, 1 405 032, 1 462 492, 1 595 047, 1 595 906, 1 596 496, 2 036 564 and 2 059 797 and Canadian Patent 631 987, but there are many others. It has proved difficult to meet the important requirements of good filtering efficiency, comfort in wear, and minimum filter thickness. It will be appreciated that as an ostomy bag is worn under clothing, the bag plus filter desirably should be unobtrusive. Comfort in wear firstly requires flexibility of the filter as well as the bag and it is also desirable that the filter parts should be spaced from the tender stomal region.

The present invention aims to solve or at least greatly mitigate these problems.

According to the invention, a filter for an ostomy bag includes the following components laminated together in the following order

(a) a layer of hot-melt adhesive whereby the filter may be affixed to a wall of the bag;

(b) a layer of microfine non-woven material;

(c) a matrix layer of hot melt adhesive;

(d) a filter member of carbon-impregnated polyurethane open cell foam;

(e) a matrix layer of hot melt adhesive; and

(f) a layer of non-woven fabric.

The filter is disposed in a space defined between the bag wall (a) above and a partition wall made of a welded synthetic plastics film, and the bag wall has an S-shaped cut therein to allow exit of flatus gases, located substantially at a central region of the filter. The partition wall in use serves to permit the passage of flatus gases from bag interior to filter but substantially prevent passage of liquids or solids.

The preferred layer of non-woven fabric has an air permeability in the range 0.25-1.0 c.c./ cms ^{2}/sec at 10 mm W.P.G., and has a weight of 64 gm/m^2 plus or minus 10%. The resulting laminated filter assembly has been found to have excellent de-odorising properties as well as high transmissibility to gas. In an H_2S deodourisation test, a fully satisfactory deodourisation was achieved with a flow of over 9 litres in 45 minutes.

The invention will be better understood from the following description of a particular embodiment thereof, given with reference to the accompanying illustrative and non-limiting drawings, in which:-

Figure 1 is a front view of one embodiment of an ostomy bag according to the invention;

Figure 2 is a rear view (i.e. looking directly at the body-side of the bag) of the bag shown in Figure 1;

Figure 3 is a diagrammatic cross-section of the bag shown in Figures 1 and 2;

Figure 4 is a cross section through part of the non-body side wall of the ostomy bag shown in Figures 1-3, illustrating the filter and a partitioning wall; and

Figure 5 is an enlarged cross-sectional view of the filter showing its laminated construction.

Referring firstly to Figures 1 to 3 the illustrated ostomy bag is largely conventional and comprises front and rear panels 10, 12 of synthetic plastics

material joined around their edge by any suitable plastics welding or joining technique to constitute an ostomy bag. In addition, to give comfort and a warm feel to the skin, a needled film 14 overlays the rear bag wall. A stomal orifice 16 (Figure 2) extends through the needled film and the rear bag wall and a pad 18 of medical grade adhesive, having thereon an polyethylene layer to render it more flexible and more readily secured by plastics welding to the bag, is included so that the ostomy bag can be stuck to the body of the wearer in conventional manner. The adhesive surface of this medical grade pad is exposed by pulling off a protective layer of release paper. Suitable medical grade adhesive compositions are pressure sensitive adhesive formulations that consist of a homogeneous blend of one or more water soluble or water swellable hydrocolloids dispersed in a viscous elastomeric substance such as polyisobutylene as disclosed by Chen in U.S. Patent 3,339,546. Optionally, the adhesive composition can also include one or more cohesive strengthening agents as described by Chen et al. in U.S. Patent 4,192,785 or one or more hydratable natural or synthetic polymers as described by Pawelchak et al. in U.S. Patent 4,393,080. Preferably, the adhesive pad includes a thin water insoluble polymeric film such as polyethylene.

As will be seen in Figures 1 and 2 a filter assembly 20 is located at an upper corner of the bag and the bag wall 10 has therein an S-shaped cut located substantially centrally of the filter assembly 20.

Referring now to Figures 4 and 5, although the filter assembly is seen as circular in these Figures, clearly this is not essential. It could be oval or rectangular or any other convenient shape. The illustrated filter assembly includes the following layers, and is attached to the inside surface of the bag

front wall 10. The layers are listed in the order moving from the bag wall towards the interior of the bag, and comprise:

(a) a layer 200 of hot melt adhesive whereby the filter may be affixed to the wall of the bag;

(b) a layer 202 of microfine non-woven material; Trade Name LUTROVIL 708 is particularly suitable;

(c) a matrix layer 204 of hot melt adhesive;

(d) a filter disc 206, preferably 2 mm thick, of carbon-impregnated crushed polyurethane open cell foam;

(e) a matrix layer 208 of hot melt adhesive and

(f) a layer 210 of non-woven fabric.

Not connected to the filter, but connected to the bag wall by a closed loop weld entirely surrounding the filter, is a partition wall 30. This may be made of EBA synthetic plastics material 50 micron thick, needled at 160 holes per square inch. The function of the partition wall 30 is to permit gas flow therethrough but substantially prevent any liquid or solid bag contents coming into contact with the filter.

The layers 202-210 specified above are integrated into a filter assembly by heat and pressure, following which the filter assembly is attached to the interior surface of the bag wall by suitably activating, by heat the adhesive layer 202. One suitbale material for the layer 202 is a polypropylene microfine non-woven film. A film of this type known under the Trade Name LUTROVIL 708. A suitable material for the layer 210 is a gas-permeable non-woven synthetic plastics material known by a manufacturer's designation V115/463.

By adopting this design, a satisfactory filter securely attached within an ostomy bag can be provided, the overall thickness of the bag in the filter region being well under $2\frac{1}{2}$ mm. Moreover, both filter and bag are flexible and are unobtrusive even when worn under thin clothing. The bag and filter are also flexible and tend to follow the contours of the wearer's body.

As an advantageous feature to enhance the overall flexibility of the bag, the backing film on the medical grade adhesive is preferably embossed polyethylene. A film embossed with grooves is particularly preferred.

Another advantageous feature of the illustrated design is that the medical grade adhesive may have thereon a sheet of paper carrying dimensioned circles as a guidance for the user when cutting a stomal orifice of the appropriate diameter in the medical grade adhesive pad. The adhesive is covered with a layer of release paper. The release paper is made to project slightly beyond the medical grade adhesive at regions located, for example, at the two ends of a horizontal diameter, such projection being for example about 2 or 3 mm. beyond the adhesive. These projections form an easily gripped tab to faciliate the peeling off of the release sheet carrying the stomal diameter diagrams once the necessary hole has been cut by scissors by the wearer in the conventional manner.

CLAIMS

1. A filter for an ostomy bag including the following components laminated together in the following order

(a) a layer of hot-melt adhesive whereby the filter may be affixed to a wall of the bag;

(b) a layer of microfine non-woven material;

(c) a matrix layer of hot melt adhesive;

(d) a filter member of carbon-impregnated polyurethane open cell foam;

(e) a matrix layer of hot melt adhesive; and

(f) a layer of non-woven fabric.

2. An ostomy bag including a filter according to claim 1 in which the filter is disposed in a space defined between the bag wall and a partition wall made of a welded synthetic plastics film, and the bag wall has an S-shaped cut therein to allow exit of flatus gases, located substantially at a central region of the filter; the partition wall being constructed and arranged to permit the passage of flatus gases from bag interior to filter but substantially prevent passage of liquids or solids.

3. A filter according to claim 1 in which the layer of non-woven fabric has an air permeability in the range 0.25-1.0 c.c./ cms ^{2}/sec at 10 mm W.P.G., and has a weight of 64 gm/m^2 plus or minus 10%.

4. An ostomy bag according to claim 2 in which the layer of non-woven fabric has an air permeability in the range 0.25-1.0 c.c./ cms ^{2}/sec at 10 mm W.P.G., and has a weight of 64 gm/m^2 plus or minus 10%.

5. A bag according to claim 2 or 4 including a pad of medical grade adhesive by which the bag can be attached to a wearer, said adhesive having thereon a layer of release paper arranged to project slightly beyond the adhesive.

6. A filter substantially as herein described with reference to and as illustrated in the accompanying drawings.

7. An ostomy bag substantially as herein described with reference to and as illustrated in the accompanying drawings.

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